

WHAT IS CLAIMED IS:

1. A method for routing data packets within a telecommunications system, the method comprising:

receiving a data packet at a CMTS;

determining whether the data packet satisfies a selected condition and, if so, encrypting the data packet; and

transmitting the data packet from the CMTS to the intended recipient(s).

2. The method of Claim 1, wherein the CMTS operates in accordance with DOCSIS.

3. The method of Claim 1, wherein determining whether the data packet satisfies a selected condition comprises determining whether the data packet is intended for broadcast to a plurality of VLAN members.

4. The method of Claim 1, wherein determining whether the data packet satisfies a selected condition comprises determining whether the data packet is intended for delivery to a VLAN member with an unknown destination address.

5. The method of Claim 1, wherein the data packet is encrypted such that access to the data packet is restricted to members of a VLAN.

6. The method of Claim 5, wherein an encryption key associated with the VLAN is used to encrypt the data packet.

7. A method for registering a cable modem with a CMTS, the method comprising:

receiving a request to register the cable modem;

assigning a service identifier to the cable modem; and

determining whether the cable modem should be associated with a VLAN and, if so, assigning a SAID associated with the VLAN to the cable modem.

8. The method of Claim 7, wherein the CMTS operates in accordance with DOCSIS.

9. The method of Claim 7, wherein each VLAN is associated with a unique SAID.

10. The method of Claim 7, wherein determining whether the cable modem should be associated with a VLAN comprises receiving an input from a user indicating whether the cable modem is part of a VLAN.

11. The method of Claim 10, further comprising receiving authentication information from the user.

12. The method of Claim 7, wherein if the cable modem should be associated with a VLAN, an encryption key associated with the VLAN is transmitted to the cable modem.

13. The method of Claim 7, wherein if the cable modem should be associated with an existing VLAN, an existing SAID corresponding to the VLAN is assigned to the cable modem.

14. The method of Claim 7, wherein if the cable modem should be associated with a new VLAN, a new SAID corresponding to the new VLAN is created and assigned to the cable modem.

15. A CMTS comprising:

a network port configured to be coupled to a telecommunications network;

a cable port configured to be coupled to one or more cable modems through which CPE devices can gain access to the telecommunications network;

a packet forwarding module in communication with the network port and the cable port; and

a VLAN bridging module in communication with the packet forwarding module, wherein the VLAN bridging module is configured to determine whether a received data packet satisfies a selected condition and, if so, encrypt the data packet before it is delivered to the intended recipient(s).

16. The CMTS of Claim 15, wherein the CMTS operates in accordance with DOCSIS.

17. The CMTS of Claim 15, wherein the selected condition comprises determining whether the data packet is intended for broadcast to a plurality of VLAN members.

18. The CMTS of Claim 15, wherein the selected condition comprises determining whether the data packet is intended for delivery to a VLAN member with an unknown destination address.

19. The CMTS of Claim 15, wherein the VLAN bridging module is configured to encrypt the data packet such that access to the data packet is restricted to members of a VLAN.

20. The CMTS of Claim 19, wherein an encryption key associated with the VLAN is used to encrypt the data packet.

21. A CMTS comprising:

- a network port configured to be coupled to a telecommunications network;
- a cable port configured to be coupled to one or more cable modems through which CPE devices can gain access to the telecommunications network;

- a cable modem registration module in communication with the network port and the cable port, wherein the cable modem registration module is configured to assign a primary service identifier to the cable modems when they are registered with the CMTS, and

- a VLAN bridging module in communication with the cable modem registration module, wherein the VLAN bridging module is configured to determine whether a cable modem should be included in a VLAN and, if so, assign a secondary service security association identifier to the cable modem.

22. The CMTS of Claim 21, wherein the CMTS operates in accordance with DOCSIS.

23. The CMTS of Claim 21, wherein each VLAN is associated with a unique secondary service security association identifier.

24. The CMTS of Claim 21, wherein the VLAN bridging module is configured to determine whether a cable modem should be associated with a VLAN by receiving an input from a user indicating whether the cable modem is part of a VLAN.

25. The CMTS of Claim 25, wherein the VLAN bridging module is configured to receive authentication information from the user.

26. The CMTS of Claim 21, wherein if a cable modem should be associated with a VLAN, the VLAN bridging module transmits an encryption key associated with the VLAN to the cable modem.

27. The CMTS of Claim 21, wherein if the cable modem should be associated with an existing VLAN, the VLAN bridging module assigns an existing secondary service security association identifier corresponding to the VLAN to the cable modem.

28. The CMTS of Claim 21, wherein if the cable modem should be associated with a new VLAN, the VLAN bridging module creates a new secondary service security association identifier corresponding to the new VLAN and assigns it to the cable modem.

29. A machine readable medium comprising machine readable instructions for causing a computer to perform a method comprising:

receiving a data packet at a CMTS;

determining whether the data packet satisfies a selected condition and, if so,

encrypting the data packet; and

transmitting the data packet from the CMTS to the intended recipient(s).

30. The machine readable medium of Claim 29, wherein the CMTS operates in accordance with DOCSIS.

31. The machine readable medium of Claim 29, wherein determining whether the data packet satisfies a selected condition comprises determining whether the data packet is intended for broadcast to a plurality of VLAN members.

32. The machine readable medium of Claim 29, wherein determining whether the data packet satisfies a selected condition comprises determining whether the data packet is intended for delivery to a VLAN member with an unknown destination address.

33. The machine readable medium of Claim 29, wherein the data packet is encrypted such that access to the data packet is restricted to members of a VLAN.

34. The machine readable medium of Claim 33, wherein a SAID associated with the VLAN is used to encrypt the data packet.